

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/772,447	SHIBA ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the response filed 11/15/06.
2. ☒ The allowed claim(s) is/are 5,7-13,15-16,18-23,25,27-28.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application</li> <li>6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date <u>2/22/07</u>.</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input checked="" type="checkbox"/> Other <u>See Continuation Sheet</u>.</li> </ol> |
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Continuation of Attachment(s) 9. Other: The drawings filed 02/06/04 are accepted by the examiner.

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jennifer Teng on February 22, 2007.

The application has been amended as follows:

2. Claims 1-4, 6, 14, 17, 24 and 26 are cancelled.
3. Rewrite claim 5 as:

- - An image display device comprising a display section comprised of a plurality of pixels; and a control section which controls said display section, wherein said image display device includes a nonvolatile phase-change type memory device having a memory for image display which is comprised of phase-change device elements and TFTs each having only a drain electrode connected to a corresponding one of the phase-change device elements, and said nonvolatile phase-change type memory device is comprised of at least one variable-resistance memory element and at least one TFT, wherein said at least one variable-resistance memory element is comprised of a chalcogenide material containing at least one element of Te, Se and S, and wherein a resistance of said at least one TFT in a conducting state thereof is in a range of from 10 k $\Omega$  to 500 k $\Omega$  and a resistance of said at least one variable-resistance memory element in a high-resistance state thereof is 1000 k $\Omega$  or more. - -

4. Rewrite claim 16 as:

- - An image display device comprising a display section comprised of a plurality of pixels; and a control section which controls said display section, wherein said image display device includes a nonvolatile phase-change type memory device having a memory for image display which is comprised of phase-change device elements and TFTs, and said nonvolatile phase-change type memory device is comprised of combinations of memory cells, each of said memory cells is comprised of one variable-resistance memory element and one TFT having only a drain electrode connected to said one variable-resistance memory element, and retains display data represented by one bit or more, wherein said at least one variable-resistance memory element is comprised of a chalcogenide material containing at least one element of Te, Se and S, and wherein a resistance of said at least one TFT in a conducting state thereof is in a range of from 10 k $\Omega$  to 500 k $\Omega$  and a resistance of said at least one variable-resistance memory element in a high-resistance state thereof is 1000 k $\Omega$  or more. - -

***Reasons for Allowance***

5. The following is an examiner's statement of reasons for allowance. The closest cited prior art of record, US 6,621,130 fails to teach or suggest, even in view of US 6,025,252, US 5,335,219, US 5,296,716, US 5,694,146 and US 6,717,179, the combination of an image display device comprising a display section comprised of a plurality of pixels; and a control section which controls said display section, wherein said image display device includes a nonvolatile phase-change type memory device having a memory for image display which is comprised of phase-change device elements and TFTs each having only a drain electrode connected to a corresponding one of the phase-change device elements, and said nonvolatile phase-change type memory device is comprised of at least one variable-resistance memory element and at least one TFT, wherein said at least one variable-resistance memory element is comprised of a chalcogenide material containing at least one element of Te, Se and S, and wherein a resistance of said at least one TFT in a conducting state thereof is in a range of from 10 k $\Omega$  to 500 k $\Omega$  and a resistance of said at least one variable-resistance memory element in a high-resistance state thereof is 1000 k $\Omega$  or more. None of the references teach the combination wherein the at least one TFT in a conducting state has a resistance which is within the range of from 10 k $\Omega$  to 500 k $\Omega$ , and the at least one variable-resistance memory element in a high resistance state has a resistance that is within the range of 1000 k $\Omega$  or more.

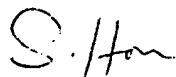
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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

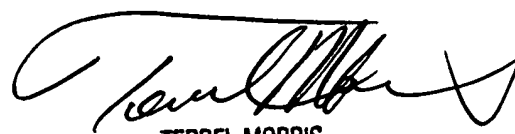
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sow-Fun Hon

02/22/07



TERREL MORRIS  
SUPERVISORY PATENT EXAMINER  
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